

Studies on the Health Impacts of 9/11

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	Author	Year	Peer Reviewed Journal	Findings:
1	Rom, W	2002	American Journal of Respiratory and Critical Care Medicine	38 year old firefighter with eosinophilic pneumonia. Washings of his airways showed fly ash, degraded glass, metal, and asbestos fibers
2	Prezant, D	2002	New England Journal of Medicine	90% of FDNY firefighters working at the WTC site had a cough, nasal congestion, chest tightness and chest burning; 87% had new onset GERD (gastroesophageal reflux disease). Increased bronchial reactivity was present and worsened over time in many firefighters.
3	Trout, D	2002	Journal of Occupational and Environmental Medicine	Federal workers working near the WTC site were far more likely to have symptoms to shortness of breath, chest tightness and eye irritation, compared to workers in Dallas. Rates of depression and PTSD symptoms were also significantly higher.
4	Galea, S	2002	New England Journal of Medicine	Rescue workers at the site were far more likely to have PTSD and depression than NYC residents who did not do this type of work.
5	CDC	2002	Morbidity and Mortality Weekly Report	82% of the adult population surveyed in neighborhoods surrounding the WTC two months after the event had persistent respiratory symptoms that developed or worsened after the WTC attack, and 39% had symptoms suggestive of PTSD.
6	Das, D	2003	Journal of Urban Health	Individuals within two miles of the WTC site were significantly more likely to visit an Emergency Department for smoke inhalation, trauma, asthma or anxiety compared to those outside a two-mile radius
7	CDC	2003	Morbidity and Mortality Weekly Report	High school and college staff present near the WTC at the time of the collapse had increased rates of eye, nose and throat irritation, cough, and shortness of breath compared to similar workers five miles away.
8	Berkowitz, GS	2003	The Journal of the American Medical Association	Women pregnant and present in lower Manhattan on 9/11/01 and in the three weeks after 9/11 were more likely to have babies with intrauterine growth retardation (smaller babies at birth).
9	Fireman, EM	2004	Environmental Health Perspectives	Sputum (phlegm) induced in firefighters (FDNY) showed WTC dust and particles with a high pH more than eight months after the attack, as well as signs of inflammation

10	Salzman, SH	2004	Journal of Occupational and Environmental Medicine	78% of police officers at the WTC site developed respiratory symptoms, and 29% of participants had abnormal breathing tests. The study was conducted in December 2001.
11	Skloot, G	2004	Chest	A study of ironworkers working at the site from September 11-15, 2001 had one or more respiratory symptom five months after the attack. Fifty-three percent had evidence of lung function abnormalities.
12	Lederman, S	2004	Environmental Health Perspectives	Birth outcomes for women living within two miles of the WTC had smaller babies than those living farther away, after controlling for other factors.
13	Lin, S	2005	American Journal of Epidemiology	Residents living near the WTC site were significantly more likely to have new-onset respiratory symptoms, compared to residents 6 miles away.
14	Tapp, LC	2005	American Journal of Industrial Medicine	Transit workers evaluated seven months after 9/11/01 with dust cloud exposure had more symptoms of PTSD and depression compared to those without these exposures.
15	Mann, JM	2005	American Journal of Industrial Medicine	A 42 year old highway patrol officer who arrived on September 11 th and was in the dust cloud developed severe respiratory symptoms and was found to have interstitial lung disease on open lung biopsy.
16	Reibman, J	2005	Environmental Health Perspectives	56% of residents surveyed in lower Manhattan had new onset lower respiratory symptoms. 26% of the residents had persistent new-onset respiratory symptoms.
17	Banauch GI	2005	Critical Care Medicine	One year post-collapse, 23% of FDNY responders who had been heavily exposed to WTC dust had persistent lung dysfunction, as compared with only 11% of moderately exposed and 4% of unexposed firefighters.
18	Banauch. G	2006	American Journal of Respiratory and Critical Care Medicine	Pulmonary function was compared before and after September 11 th . A significant decline in pulmonary function was noted in FDNY personnel who were present at the WTC from September 11-13, 2001, about 12 times more than would be expected from normal aging.
19	Herbert, R.	2006	Environmental Health Perspectives	Over 9000 WTC responders were examined over 2.5 year period from July 2002 to April 2004. 69% reported new or worsened respiratory upper and lower symptoms while performing WTC work. Symptoms persisted to the time of examination in 59% of these workers. 28% of responders had abnormal breathing tests.

20	Mauer, MP	2007	Journal of Occupational and Environmental Medicine	Nearly half of NY State personnel (1,400) responding to the WTC had lower and upper respiratory symptoms, and one third reported psychological symptoms. Participants were evaluated from May 2002 – November 2003.
21	Buyantseva, LV	2007	Journal of Occupational and Environmental Medicine	44% of police officers surveyed at one month and 19 months after September 11 th had persistent cough, and other respiratory symptoms. Rates of lower respiratory symptoms increased significantly from 2001 to 2003.
22	Izbicki, G	2007	Chest	26 firefighters (FDNY) developed sarcoidosis in the five years after September 11, 2001. The incidence of sarcoidosis was significantly (nearly 8 times) increased when compared to the years before September 11 th .
23	Mendelson, D.	2007	Journal of Occupational and Environmental Medicine	25 World Trade Center workers with lower respiratory symptoms had chest imaging revealing air trapping. Air trapping in these workers may be a result of disease of the small airways in the lungs.
24	Wheeler K	2007	Environmental Health Perspectives	WTC rescue, recovery and clean-up workers were surveyed in the WTC Health Registry and found elevated rates of newly diagnosed asthma.
25	Brackbill, RM	2007	Morbidity and Mortality Weekly Report.	Data from the New York City Dept of Health Registry show that, two to three years after 9/11, survivors of buildings that collapsed or that were damaged as a result of the WTC attack reported substantial physical and mental health problems. The long-term effects require followup.
26	Perrin MA	2007	American Journal of Psychiatry	This NYC DOH Registry study compared the rates of posttraumatic stress disorder (PTSD) across different occupations involved in rescue/recovery work at the WTC site and found that PTSD was significantly higher among those who performed tasks not common for their occupation.
27	Tao XG	2007	Journal of Occupational and Environmental Medicine	Respiratory health among cleanup workers at the WTC disaster site was evaluated approximately 20 months after the initial exposure; compared with those never at the site, WTC workers were more than three times as likely to report lower respiratory symptoms.
28	Perera, FP	2007	Environmental Health Perspectives	Exposure of pregnant women to the WTC dust cloud may have contributed to a reduction in cognitive development of their children at age 3.

29	DiGrande L	2008	Journal of Traumatic Stress	NYC DOH Registry surveyed 11,037 adults who had lived south of Canal Street in New York City on 9/11, and found that that posttraumatic stress disorder (PTSD) is a continued health problem in the local community.
30	Farfel M	2008	Journal of Urban Health	NYC DOH Registry data estimate that between 3,800 and 12,600 adults experienced newly diagnosed asthma and 34,600–70,200 adults experienced PTSD following the attacks, suggesting extensive and continuing health impacts.
31	De la Hoz, RE	2008	International Archives of Occupational and Environmental Health	In a cohort of World Trade Center workers, five categories of disease were predominant: upper airway disease (78%), gastroesophageal reflux disease (58%), lower airway disease (49%), psychological (42%) and chronic musculoskeletal illness (18%).
32	De La Hoz, RE	2008	American Journal of Industrial Medicine	In addition to upper and lower airway disorders, vocal cord dysfunction has been found in World Trade Center workers.
33	Moline, Jacqueline	2008	Mount Sinai Journal of Medicine	Clinicians at Mount Sinai developed a medical screening program to evaluate the health status of workers and volunteers who sustained exposure at the WTC disaster site. The program has successfully recruited nearly 22,000 responders, and serves as a model for the rapid development of programs to assess the health of others exposed to similar hazards.
34	Savitz, David	2008	Mount Sinai Journal of Medicine	Comparison of the experience at the World Trade Center disaster with 4 past incidents of chemical and radiation releases at Seveso, Italy; Bhopal, India; Chernobyl, Ukraine; and Three Mile Island, USA, provided useful contrasts and insights.
35	Szeinuk, Jaime	2008	Mount Sinai Journal of Medicine	Diffuse parenchymal lung diseases (DPLDs) appear to be associated with heavy or extended exposure to the toxins released at the WTC disaster site. This suggests the need for continued long-term clinical follow-up of this population.
36	Bills, Corey	2008	Mount Sinai Journal of Medicine	The mental health needs of workers exposed to the events of September 11 th varied widely. These findings suggest the need for future programs for disaster workers to include accessible mental health treatment services as well as comprehensive post-disaster surveillance.
37	Enright, Paul	2008	Mount Sinai Journal of Medicine	This article describes the approach used to standardize lung function testing for the consortium of institutions providing medical monitoring examinations to WTC responders.

38	Landrigan, Philip	2008	Mount Sinai Journal of Medicine	To assess effects on children's health associated with the attacks on the WTC, research teams at the Mount Sinai School of Medicine and other academic health centers in New York City launched a series of clinical and epidemiologic studies. They found medical, developmental and mental health problems.
39	Reissman, Dori	2008	Mount Sinai Journal of Medicine	This article reviews lessons learned about managing the safety and health of workers who were involved in the WTC disaster, including the ongoing responder health burdens, and the changes in federal infrastructure, response planning, and resources for protection of response and recovery personnel.
40	Stellman, Jeanne	2008	Environmental Health Perspectives	Working in 9/11 recovery operations is associated with chronic impairment of mental health and social functioning, which greatly exceed population norms. Surveillance and treatment programs continue to be needed.
41	Prezant DJ	2008	Lung	This paper describes treatment recommendations for the main respiratory health consequence from the collapse of the WTC, which has been called "WTC Cough Syndrome", and includes chronic sinusitis, asthma, and/or bronchitis, often complicated by gastroesophageal reflux dysfunction (GERD).
42	Prezant DJ	2008	Mount Sinai Journal of Medicine	This paper reviews several respiratory consequences of occupational and environmental disasters and uses the WTC disaster to illustrate the consequences of chronic upper and lower respiratory tract inflammation.
43	De La Hoz, RE	2008	Journal of Occupational and Environmental Medicine	A variety of gastroesophageal reflux symptoms and disorders is found in WTC responders and seems to be related to the presence of lung disease.
44	De La Hoz, RE	2008	Journal of Occupational and Environmental Medicine	The WTC experience of immigrant responders demonstrates that their health burden is exacerbated by limitations in access to appropriate health care, disability and compensation benefits, and vocational rehabilitation services.

45	Thomas PA	2008	Environmental Health Perspectives	Asthma prevalence after 9/11 among WTC Health Registry enrollees under 5 years of age was higher than national estimates, and new asthma diagnosis was associated with dust cloud exposure in all age groups. Severity of asthma and persistence of other respiratory symptoms will be determined on follow-up surveys.
46	Daly ES	2008	Journal of Trauma and Stress	Disaster relief workers may experience an increase in stress symptoms at the anniversary of their traumatic exposure.
47	Tao, L	2008	Environmental Science and Technology	WTC responders were exposed to airborne pollutants through inhalation of dust and smoke released during and after the collapse of the WTC. The potential health implications of these results need more follow up.
48	Skloot, Gwen	2009	Chest	Lung function abnormalities remain evident more than 5 years after the disaster in many exposed individuals, indicating the need for longer term monitoring of WTC responders.
49	Katz, CL	2009	Psychiatric Bulletin	Ironworkers at Ground Zero tend to have significant psychiatric symptoms likely associated with the traumatic experience of working there during the clean-up operation.

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